Attorney's Docket No. 6491.P059 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Patent Application of:	)	
	)	
Hossein Sedarat	)	Examiner: Not Yet Assigned
	)	
Application No.: 10/789,552	)	Art Unit: 2631
	)	
Filed: February 26, 2004	)	
	)	
For: BIT-LOADING IN MULTICARRIER COMMUNICATION SYSTEMS IN THE PRESENCE OF AN ASYMMETRIC, CORRELATED GAUSSIAN NOISE SOURCES	)	

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

INFORMATION DISCLOSURE STATEMENT

Sir:

Enclosed is a copy of Information Disclosure Citation Form PTO-1449 or PTO/SB/08 together with copies of the documents cited on that form, except for copies not required to be submitted (e.g., copies of U.S. patents and U.S. published patent applications need not be enclosed). It is respectfully requested that the cited documents be considered and that the enclosed copy of Information Disclosure Citation Form PTO-1449 or PTO/SB/08 be initialed by the Examiner to indicate such consideration and a copy thereof returned to applicant(s).

Pursuant to 37 C.F.R. § 1.97, the submission of this Information Disclosure Statement is not to be construed as a representation that a search

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 on March 2, 2005 (Date of Deposit)

Deborah A. McGovern
(Typed or printed name of person mailing correspondence)

D M^c Govern
(Signature of person mailing correspondence)

has been made and is not to be construed as an admission that the information cited in this statement is material to patentability.

Pursuant to 37 C.F.R. § 1.97, this Information Disclosure Statement is being submitted under one of the following (as indicated by an "X" to the left of the appropriate paragraph):

__X__ 37 C.F.R. §1.97(b).

_____ 37 C.F.R. §1.97(c). If so, then enclosed with this Information Disclosure Statement is one of the following:

____ A statement pursuant to 37 C.F.R. §1.97(e) or

____ A check for $180.00 for the fee under 37 C.F.R. § 1.17(p).

_____ 37 C.F.R. §1.97(d). If so, then enclosed with this Information Disclosure Statement are the following:

(1) A statement pursuant to 37 C.F.R. §1.97(e); and

(2) A check for $180.00 for the fee under 37 C.F.R. §1.17(p) for submission of the Information Disclosure Statement.

If there are any additional charges, please charge Deposit Account No. 02-2666.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Dated: 3-2, 2005

Thomas S. Ferrill
Reg. No. 42,532

12400 Wilshire Blvd.
Seventh Floor
Los Angeles, CA 90025
(408) 720-8300

FEE TRANSMITTAL FOR FY 2005

(FY 2005 Begins 10/01/2004. Fee changes made on 11/22/04 and 12/08/04 are included.)

TOTAL AMOUNT OF PAYMENT ($) 0

Complete if Known:

Application No.	10/789,552
Filing Date	February 26, 2004
First Named Inventor	Hossein Sedarat
Examiner Name	Not Yet Assigned
Art Unit	2631
Attorney Docket No.	6491.P059

_____ **Applicant claims small entity status. See 37 CFR 1.27.**

METHOD OF PAYMENT (check all that apply)

_____ **Check** _____ **Credit Card** _____ **Money Order** _____ **Other** 0 **None**

_____ **Deposit Account**

Deposit Account Number : 02-2666

Deposit Account Name: _____

X **The Director is Authorized to do the following with respect to the above-identified Deposit Account:**

- ____ **Charge fee(s) indicated below.**
- X **Credit any overpayments.**
- X **Charge any additional fees during the pendency of this application.**
- X **Any concurrent or future reply that requires a petition for extension of time should be treated as incorporating an appropriate petition for extension of time and all required fees should be charged.**
- ____ **Charge fee(s) indicated below except for the filing fee**

FEE CALCULATION

1A. BASIC FILING FEE/SEARCH FEE/EXAMINATION FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description		Fee Paid
1011	300	2011	150	Utility application filing fee	1,000/500*	$300.00
1111	500	2111	250	Utility search fee		$500.00
1311	200	2311	100	Utility examination fee		$200.00
1012	200	2012	100	Design application filing fee	430/215*	
1112	100	2112	50	Design search fee		
1312	130	2312	65	Design examination fee		
1013	200	2013	100	Plant filing fee	660/330*	
1113	300	2113	150	Plant search fee		
1313	160	2313	80	Plant examination fee		
1004	300	2004	150	Reissue filing fee	1,400/700*	
1114	500	2114	250	Reissue search fee		
1314	600	2314	300	Reissue examination fee		
1005	200	2005	100	Provisional application filing fee		

SUBTOTAL (1) $0

* List the filing, search, and examination fees separately, but pay concurrently.

Based on Form PTO/SB/17 (08-03) as modified by BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP on 12/08/04.

1B. APPLICATION SIZE FEE

		Extra Sheets		Fee from below	Fee paid
Total Sheets	_____ – 100 =	_____ /50 =	_____ *	X $250.00	_____

*(round up to integer)

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
1081	250	2081	125	**Utility application size fee for each additional group of 50 sheets beyond initial 100 sheets** (count spec & drawings except sequences & program listings)
1082	250	2082	125	**Design application size fee for each additional group of 50 sheets beyond initial 100 sheets** (count spec & drawings except sequences & program listings)
1083	250	2083	125	**Plant application size fee for each additional group of 50 sheets beyond initial 100 sheets** (count spec & drawings except sequences & program listings)
1084	250	2084	125	**Reissue application fee for each additional group of 50 sheets beyond initial 100 sheets** (count spec & drawings except sequences & program listings)

SUBTOTAL (2) $ 0

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

		Extra Claims		Fee from below		Fee Paid
Total Claims	_____	– 20** =	_____	X $50.00	=	_____
Independent Claims	_____	– 3** =	_____	X $200.00	=	_____
Multiple Dependent				_____	=	_____

**Or number previously paid, if greater; For Reissues, see below.

Large Entity Code	Large Entity ($)	Small Entity Code	Small Entity ($)	Fee Description
1202	50	2202	25	**Claims in excess of 20**
1201	200	2201	100	**Independent claims in excess of 3**
1203	360	2203	180	**Multiple dependent claim, if not paid**
1204	200	2204	100	**Reissue independent claims over original patent**
1205	50	2205	25	**Reissue claims in excess of 20 and over original patent**

SUBTOTAL (3) $ 0

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for ex parte reexamination	
1813	8,800	1813	8,800	Request for inter parties reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	120	2251	60	Extension for reply within first month	
1252	450	2252	225	Extension for reply within second month	
1253	1,020	2253	510	Extension for reply within third month	
1254	1,590	2254	795	Extension for reply within fourth month	
1255	2,160	2255	1,080	Extension for reply within fifth month	
1401	500	2401	250	Notice of Appeal	
1402	500	2402	250	Filing a brief in support of an appeal	
1403	1,000	2403	500	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	500	2452	250	Petition to revive – unavoidable	
1453	1,500	2453	750	Petition to revive - unintentional	
1501	1,400	2501	700	Utility issue fee (or reissue)	
1502	800	2502	400	Design issue fee	
1503	1100	2503	550	Plant issue fee	
1464	130	1460	130	Petitions to the Commissioner (CFR 1.17(h) Group III)	
1463	200	1460	200	Petitions to the Commissioner (CFR 1.17(g) Group II)	
1462	400	1460	400	Petitions to the Commissioner (CFR 1.17(f) Group I)	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	0
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	790	2809	395	For filing a submission after final rejection (see 37 CFR 1.129(a))	
1814	130	2814	65	Statutory Disclaimer	
1810	790	2810	395	For each additional invention to be examined (see 37 CFR 1.129(b))	
1801	790	2801	395	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	
1504	300	1504	300	Publication fee for early, voluntary, or normal pub.	
1505	300	1505	300	Publication fee for republication	
1803	130	1803	130	Request for voluntary publication or republication	
1808	130	1808	130	Processing fee under 37 CFR 1.17(i) (except provisionals)	
1454	1,370	1454	1,370	Acceptance of unintentionally delayed claim for priority	

Other fee (specify) _____

Other fee (specify) _____

SUBTOTAL (4) $ 0

*Reduced by Basic Filing Fee Paid

SUBMITTED BY:

Typed or Printed Name: Thomas S. Ferrill

Signature: _____ Date: 3-2-05

Reg. Number: 42,532 Telephone Number: 408-720-8300

Send to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

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Substitute for Form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Complete if Known	
Application Number	10/789,552
Filing Date	February 26, 2004
First Named Inventor:	Hossein Sedarat
Art Unit	2631
Examiner Name	
Attorney Docket Number	6491.P059

Sheet	1	of	4

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (If known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
/LN/		US- 5,285,474	02/08/1994	Chow et al.	
		US-			
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		US-			

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3] Number[4] Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]

Examiner Signature	/Leon Viet Nguyen/	Date Considered	03/27/2008

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1]Applicant's unique citation designation number (optional). [2]See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3]Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4]For Japanese patent documents, the indication of the year of reign of the Emperor must precede the serial number of the patent document. [5]Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. [6]Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SENT FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Substitute for Form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	10/789,552
				Filing Date	February 26, 2004
				First Named Inventor:	Hossein Sedarat
				Art Unit	2631
				Examiner Name	
Sheet	2	**of**	4	Attorney Docket Number	006491.P059

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T[2]
/LN/		FRANKLIN, CURT, "How DSL Works," How Stuff Works, http://computer.howstuffworks.com/dsl.htm/printable, printed November 16, 2004.	
		SEDARAT, HOSSEIN, et al., "Impulse Noise Protection for Multi-Carrier Communication Systems", Submitted to IEEE ICASSP (2005).	
		SEDARAT, HOSSEIN, et al., "Multicarrier Bit-Loading in Presence of Biased Gaussian Noise Sources", IEEE Consumer Communication and Networking Conference, January 2005.	
		BACCARELLI, ENZO, et al., "Novel Efficient Bit-Loading Algorithms for Peak-Energy-Limited ADSL-Type Multicarrier Systems, IEEE Trans on Signal Processing, vol. 50, no. 5, May 2002.	
		SONALKAR, RANJAN, et al., "An Efficient Bit-Loading Algorithm for DMT Application," IEEE Comm. Letters, vol. 4, pp. 80-82, March 2000.	
		CAMPELLO, JORGE, "Optimal Discrete Bit Loading for Multicarrier Modulation Systems," IEEE International Symposium on Information Theory, August 1998, Cambridge, MA.	
		CHOW, PETER S., et al., "A Practical Discrete Multitone Transceiver Loading Algorithm for Data Transmission over Spectrally Shaped Channels," IEEE Trans. on Communications, vol. 43, no. 2, 1995.	
		FISCHER, ROBERT F.H., et al., "A New Loading Algorithm for Discrete Multitone Transmission," IEEE, 1996, pp. 724-728.	
		LAMPE, LUTZ H.-J., et al., "Performance Evaluation of Non-Coherent Transmission over Power Lines," 8 pgs. 2000	
/LN/		HENKEL, WERNER, et al., "Maximizing the Channel Capacity of Multicarrier Transmission by Suitable Adaptation of the Time-Domain Equalizer," IEEE, Vol. 48, no. 12, December 2000.	

Examiner Signature	/Leon Viet Nguyen/	Date Considered	03/27/2008

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[1]Applicant's unique citation designation number (optional). [2]Applicant is to place a check mark here if English Translation is attached.

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(use as many sheets as necessary)*				Application Number	10/789,552
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				Examiner Name	
Sheet	3	**of**	4	Attorney Docket Number	006491.P059

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T[2]
/LN/		LASHKARIAN, NAVID, et al., "Fast Algorithm for Finite-Length MMSE Equalizers with Application to Discrete Multitone Systems," IEEE 1999, pp. 2753-2756.	
		MELSA, PETER J.W., et al., "Impulse Response Shortening for Discrete Multitone Transceivers," IEEE Vol. 44, no. 12, December 1996, pp. 1662-1672.	
		AL-DHAHIR, NAOFAL, et al., "Optimum Finite-Length Equalization for Multicarrier Transceivers," IEEE Vol. 44, No. 1, January 1996, pp. 56-64.	
		LEKE, ACHANKENG, et al., "A Maximum Rate Loading Algorithm for Discrete Multitone Modulation Systems," IEEE 1997, pp. 1514-1518.	
		BINGHAM, JOHN A.C., "Multicarrier Modulation for Data Transmission: An Idea Whose Time Has Come," IEEE, May 1990, pp. 5-14.	
		ARSLAN, G., et al., "Equalization for Discrete Multitone Transceivers to Maximize Bit Rate," IEEE, Vol. 49, No. 12, December 2001, pp. 3123-3135.	
		FARHANG-BOROUJENY, BEHROUZ, et al., "Design Methods for Time-Domain Equalizers in DMT Transceivers," IEEE, Vol. 49, No. 3, March 2001, pp. 554-562.	
		WYGLINSKI, ALEXANDER M., et al., "An Efficient Bit Allocation for Multicarrier Modulation," IEEE Wireless Communication, Networking Conference, Atlanta, GA, March 2004, 4 pgs.	
		"Draft Standard," Network and Customer Installation Interfaces- Asymmetric Digital Subscriber Line (ADSL) Metallic Interface, Draft American National Standard for Telecommunications, Alliance for Telecommunications Industry Solutions, T1.413-1998.	
		KRONGOLD, BRIAN S., et al., "Computationally Efficient Optimal Power Allocation Algorithms for Multicarrier Communication Systems," IEEE Trans. on Communications, vol. 48, pp. 23-27, Jan. 2000.	
/LN/		BARRETO, ANDRE NOLL, et al., "Adaptive Bit Loading for Wireless OFDM Systems," IEEE International Symposium on Personal, Indoor and Mobile Radio Communications, October 2001.	

Examiner Signature	/Leon Viet Nguyen/	Date Considered	03/27/2008

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[1]Applicant's unique citation designation number (optional). [2]Applicant is to place a check mark here if English Translation is attached.

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				Filing Date	February 26, 2004
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				Art Unit	2631
				Examiner Name	
Sheet	4	**of**	4	Attorney Docket Number	006491.P059

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/LN/		MILOSEVIC et al., "Simultaneous Multichannel Time Domain Equalizer Design Based on the Maximum Composite Shortening SNR". Dept. of Electrical and Computer Eng., The University of Texas, Austin Texas, Prior to filing date of current application, pp. 5 total. 2002	
/LN/		ANA GARCIA ARMADA et al., "Multi-User Constant-Energy Bit Loading for M-PSK-Modulated Orthogonal Frequency Division Multiplexing", © 2002 IEEE, pp. 526-530.	
/LN/		MISAO FUKUDA et al., "A Line Terminating LSI Using Echo Cancelling Method for ISDN Subscriber Loop Transmission". IEEE Journal on Selected Areas in Communications, Vol. 6, No. 3, April 1988, pp. 476-483.	
/LN/		CHENG-SHING WU et al., "A Novel Cost-Effective Multi-Path Adaptive Interpolated FIR (IFIR)-Based Echo Canceller", © 2000 IEEE, pp. V-453-V-456.	
/LN/		Ranjan V. Sonalkar et al., "Shannon Capacity of Frequency-Overlapped Digital Subscriber Loop Channels", © 2002 IEEE, pp. 1741-1745.	
/LN/		IVAN A. PEREZ-ALVAREZ et al., "A Differential Error Reference Adaptive Echo Canceller for Multilevel PAM Line Codes*" *Work supported by National Project T1C95-0026, © 1996, IEEE, pp. 1707-1710.	
/LN/		NADEEM AHMED et al., "Optimal Transmit Spectra for Communication in the Presence of Crosstalk and Imperfect Echo Cancellation", Copyright 2001 IEEE, pp. 17-21.	

Examiner Signature	/Leon Viet Nguyen/	Date Considered	03/27/2008

*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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